The screw 3 is moved backward when the molten resin is fed in front of the screw 3 upon rotation. In the latter half of plastication measurement, the load pressure of the hydraulic motor 4 is decreased. When the hydraulic motor 4 is rotated with a low load pressure, mechanical energy applied to the molten resin is decreased. In order to decrease the backward speed of the screw 3 so as to compensate for the decrease in mechanical energy, the time period for passing the resin through the channel of the screw 3 is prolonged as compared with the case wherein the load pressure of the hydraulic motor 4 is high. In accordance with the relationship given such that (mechanical energy applied to the resin)=(screw load pressure)×(time for causing the resin to pass through the screw channel), the load pressure of the screw 3 is detected by the load pressure sensor 55 and the backward speed of the screw 3 is calculated to apply a predetermined energy per unit volume of the resin. Therefore, changes in temperature of the plasticated resin material and its dispersion state can be decreased. When the rotational speed of the screw 3 is controlled while the backward speed of the screw 3 is being controlled, the molding range can be further widened.

What is claimed is:

1. A plasticating control apparatus for an in-line screw type injection machine, comprising: a resin pressure sensor for detecting as an electrical signal a pressure of a molten material at a distal end of a heating cylinder during plastication; an electric motor whose rotational speed is controlled in response to a control signal; means for directly converting the rotational speed of said electric motor to reciprocal movement of a hydraulic piston for driving a screw; and a control circuit for receiving the electrical signal from said resin pressure sensor and supplying the control signal to said electric motor in accordance with the electrical signal, the control signal supplied from said control circuit to said electric motor being adapted to control the rotational speed of said electric motor and hence a backward speed of the screw such that the pressure of the molten material at the distal end of said heating cylinder is not a negative pressure but substantially zero kg/cm^2.

2. An apparatus according to claim 1, further comprising a load pressure sensor for detecting as an electrical signal a load pressure of a hydraulic motor for driving said screw, and for supplying the electrical signal to said control circuit, said control circuit being adapted to control the backward speed of said screw in accordance with output signals from said load pressure sensor and said resin pressure sensor.

3. An apparatus according to claim 2, wherein said control circuit stops said hydraulic motor and starts an alarm generator when the load pressure of said hydraulic motor is lower than a predetermined threshold value.

4. An apparatus according to claim 1, wherein said converting means comprises a screw rod integrally mounted with an output shaft of said electric motor to be parallel to a reciprocal direction of said hydraulic piston, and a female threaded member threadably engaged with said screw rod and integrally mounted with said hydraulic piston.

5. An apparatus according to claim 4, wherein said female threaded member has a two-split structure so as to engage or disengage said female threaded member with or from said screw rod.

6. A plasticating control apparatus for an in-line screw type injection machine, comprising: a resin pressure sensor for detecting as an electrical signal a pressure of a molten material at a distal end of a heating cylinder during plastication; a load pressure sensor for detecting as an electrical signal a load pressure of a hydraulic motor for driving said screw; an electric motor whose rotational speed is controlled in response to a control signal; means for directly converting the rotational speed of said electric motor to reciprocal movement of a hydraulic piston for driving a screw; and a control circuit for receiving the electrical signals from said resin pressure sensor and said load pressure sensor, calculating a predetermined rotational speed of said electric motor in accordance with the electrical signals, and supplying the control signal representing the predetermined rotational speed to said electric motor.

7. An apparatus according to claim 6, wherein said control circuit stops said hydraulic motor and starts an alarm generator when the load pressure of said hydraulic motor is lower than a predetermined threshold value.

8. An apparatus according to claim 6, wherein said converting means comprises a screw rod integrally mounted with an output shaft of said electric motor to be parallel to a reciprocal direction of said hydraulic piston, and a female threaded member threadably engaged with said screw rod and integrally mounted with said hydraulic piston.

9. An apparatus according to claim 8, wherein said female threaded member has a two-split structure so as to engage or disengage said female threaded member with or from said screw rod.

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